Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at http://about.jstor.org/participate-jstor/individuals/early-journal-content.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

Now when the perpendicular from the right angle to the hypotenuse is 12 the hypotenuse must be 26. Hence, substituting in the last equation we have $dy=\frac{6\times26\times\frac{1}{12}}{13}=1$; *i. e.*, the area, at the time mentioned, is increasing at the rate of 1 square inch a second.

Also solved by *L. B. FILLMAN*, *ALOIS F. KOVARIK*, *J. SCHEFFER*, *C. D. SCHMITT*, and *G. B. M. ZERR*.

109. Proposed by M. E. GRABER, Heidelberg University, Tiffin, Ohio.

Find the curve in which the product of the perpendiculars drawn from two fixed points to any tangent is constant.

Solution by COOPER D. SCHMITT, A. M., Professor of Mathematics, University of Tennessee, Knoxville, Tenn., and the PROPOSER.

Let the equation of the tangent be

$$y - y'=\frac{dy'}{dx'}(x-x').$$

And let the two points be $(a, 0)$ and $(-a, 0)$.

The product of the two perpendiculars is easily found to be

$$\frac{(xdy-ydx)^2-(ady)^2}{(dx)^2+(dy)^2}\text{ which}=b^2,$$

$$\text{or }\frac{(xp-y)^2-(ap)^2}{1+p^2}=b^2,\text{ or }(xp-y)^2=p^2(a^2+b^2)+b^2,$$

$$\text{or }y=px\pm\sqrt{[p^2(a^2+b^2)+b^2]}.$$

This is Clairaut's form, so that we have

$$y=mx\pm\sqrt{[m^2(a^2+b^2)+b^2]},$$

which is the well-known tangent to an ellipse.

Also solved by *H. C. WHITAKER*, and *G. B. M. ZERR*.

MECHANICS.

108. Proposed by F. P. MATZ, M. Sc., Ph. D., Professor of Mathematics and Astronomy in Irving College, Mechanicsburg, Pa.

Can it be shown, as a result of Kepler's third law, that the distances are inversely proportional to the squares of the velocities ?

Solution by G. B. M. ZERR, A. M., Ph. D., Professor of Chemistry and Physics, The Temple College, Philadelphia, Pa.

This can be demonstrated for circular orbits as follows :